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10/663,689	09/17/2003	Fabrice Lestideau	00169.002741	3985

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EXAMINER
CHAWAN, SHEELA C

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 April 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-6,12-14 and 17-19</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-6,12-14 AND 17-19</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.　Applicant's amendment filed on 4/24/07 has been entered and made of record.

Claims 7-11,15-16 and 20-21 are canceled claims.

Claims 1-6,12-14 and 17-19 are pending in the application.

Response to Arguments

2.　Applicant's arguments see page 7, lines 1-8 of the remarks, filed on 4/24/07 with

respect to rejection of claims 1-21 under 102(e) have been fully considered and are

persuasive. Therefore, 102(e) rejection of claims 1-21 has been withdrawn. However,

upon further consideration, a new ground(s) of rejection is made in view of Behzad

Dariush et al., IEEE, journal "Spatiotemporal analysis of face profiles: detection,

segmentation, and registration".

Claim Rejections - 35 USC § 103

3.　The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1- 6, 12-14, 17-19, are rejected under 35 U.S.C. 103(a) as being

unpatentable over by Cosatto et al., (US. 6,118,887), in view of Behzad Dariush et al.,

"Spatiotemporal analysis of face profiles: detection, segmentation, and registration".

As to claim 1, Cosatto discloses a method of tracking facial features (column 3, lines 11- 17, column 4, lines 28-29) in a video sequence (column 4, lines 26- 31), said method comprising the steps of:

(a) receiving facial features for tracking (column 3, lines 18- 28) in a first frame of said video sequence (note, tracking face and facial features receiving number of model such as shape 610, color 620, and motion 630, each channel is activated for collecting data for each features during a sequences of frames, all three channels being their respective analysis based on shape, color and motion fig 6A, column 14, lines 48- 64).

(d) verifying which of said candidate facial features correspond with said facial features for tracking (column 5, lines 30- 52, column 13, lines 62- 67, column 14, lines 1-11).

Cosatto discloses methods for tracking heads, faces, facial features, and other objects within complex images.

Cosatto is silent about (b) spatiotemporally segmenting said video sequence to provide a sequence of associated two-dimensional segments, a first segment in said sequence of associated two- dimensional segments including said facial features for tracking;

(c) identifying candidate facial features in at least a second two-dimensional segment in said sequence of associated segments; and

Behzad Dariush discloses spatiotemporal analysis of face profiles: detection, segmentation, and registration". The system comprises of:

(b) spatiotemporally segmenting said video sequence to provide a sequence of associated two-dimensional segments (paragraph 1.3), a first two dimensional (note, paragraph 2, image acquisition and preprocessing paragraph talks about using the polygon vertices as control points, a 2D cubic interpolation method is then used to re-sample and smooth the contour) segment in said sequence of associated two-dimensional segments including said facial features for tracking (note, paragraph 2, image acquisition and preprocessing paragraph talks about using the polygon vertices as control points, a 2D cubic interpolation method is then used to re-sample and smooth the contour);

(c) identifying candidate facial features in a second two-dimensional segment in a second frame of said video sequence, said second two – dimensional segment being (paragraph 4, talks about segmentation and registration) one of said sequence of associated two- dimensional segments (note, In fig 3, subsequent frames (corresponds to first and second frames) which represents images as the head rotates towards the profiles view); and

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Cosatto to include spatiotemporally segmenting said video sequence in two dimensional segments. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Cosatto by the teaching of Behzad Dariush et al., in which spatiotemporal approach to detect and segment face profiles in which segmentation is enhanced by exploiting the spatial as

well as temporal structure of the face (as suggested by Behzad Dariush in paragraph 7
of the conclusion).

As to claims 2, 13 and 18 discloses Cosatto a method as claimed in claim 1
comprising the further step of:

(e) recovering lost facial features by using known geometric relations
between facial features (column 16, lines 40- 67, column 17, and lines 1- 12).

As to claims 3 and 14, Behzad Dariush discloses a method as claimed in claim 1
wherein step (c) comprises the sub-steps of:

(ci) forming a sub-image including said second two-dimensional segment in said
sequence of associated two-dimensional segments (note, In fig 3, subsequent frames
(corresponds to first and second frames) represents images as the head rotates
towards the profiles view); and

(cii) normalizing the size of said sub-image (note, fig 3 does normalization based on
subsequent frames represent images as the head rotated towards the profiles view at
time t that maximizes the object function); and

(ciii) identifying candidate facial features in said normalized sub-image (note, fig 3,
subsequent frames represent images as the head rotated towards the profiles view,
corresponds to identifying features in normalized sub-image).

As to claim 4, Cosatto discloses a method as claimed in 1 wherein step (d)
measures (column 6, lines 40- 56) the correspondence between said candidate facial
features and said facial features for tracking (column 3, lines 18-50).

As to claim 5, Cosatto discloses a method as claimed in claim 4 wherein step (d) comprises determining whether said candidate facial features are within a region of said facial features for tracking in a previous flame (column 8, lines 7-41, 66-67, fig 6A,).

As to claim 6, Cosatto discloses a method as claimed in claim 5 wherein step (d) further comprises determining whether said candidate facial features within each of said regions that are similar in shape (column 13, lines 28- 51, column 18, lines 16-30) to said facial features for tracking in said previous frame (column 13, lines 10-25).

As to claim 12 see the rejection of claim 1 above.

As to claim 17, argument analogous those presented for claim 1 are applicable to claim 17. Regarding claim 17, a program code stored on a memory medium for tracking facial features in a video sequence, said program comprising (column 4, lines 36- 42, 51- 58, column 6, lines 8- 17).

As to claim 19, see the rejection of claim 17 above.

Contact Information

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Thursday 7.30 - 6.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on 571-272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheela Chawan
Patent Examiner
Group Art Unit 2624
June 21, 2007

SHEELA CHAWAN
PRIMARY EXAMINER